acknowledges the request, usually indicating that service should be provided, assuming the customer is valid and authorized.

4.1.4   Prior to portability, the Wireless Service Provider (WSP) could assume that the MIN value sent by the Mobile Station was the same as its MDN. The serving switch requires the MDN to populate the Calling Party Number parameters in signaling and billing records. If the subscriber has ported, the MIN will not be the same as the MDN and using the MIN as the calling party number is incorrect. Services which rely on the information will not function properly. These include:

- automatic callback, calling number, and calling name delivery;
- the incorrect callback number is delivered on E911 calls;
- the incorrect calling party number is used for toll billing by the interexchange carriers;
- the incorrect calling party number is used for billing records;
- the incorrect calling party number is used to bill for various operator services (e.g. DACC).

4.1.5   To rectify this situation, the home WSP should return the MDN associated with the MIN upon registration. The IS-41C protocol does allow a parameter to be returned as an optional parameter, but support is limited by equipment vendors.

4.1.6   The impact affects any area in which a subscriber can roam. This includes U.S., Canada, Puerto Rico, U.S. Virgin Islands, Guam, and any other area included in the North American Numbering Plan. Consequently, all areas would have to simultaneously support the signaling enhancements upon registration to avoid this problem.

4.2   **GSM Based Providers.** For GSM, there already exists a separation between the dialed number, the MSISDN, and the routing number, the IMSI. The IMSI allows for location updates and feature interaction. The MSISDN allows for subscriber mobile originations and call delivery. Billing for calls traversing the GSM network can be setup based on IMSI and/or MSISDN depending on the call scenario. Thus, GSM does not have the same national roaming impacts resulting from use of MIN as the mobile identifier. There may be impacts if utilizing dual mode operations.

4.3   **E911.** The impacts to E911 are related to the roaming impacts described above. Currently, the MSC assumes the MIN value sent by the mobile

station on registration is the same as the MDN. While the MIN is a 10 digit number which may have the same format as a telephone number, it is not the same as the telephone number for a ported subscriber. Consequently, if the MIN is delivered to the PSAP for a ported subscriber, that value cannot be used to callback the subscriber.

4.4   Short Messaging Service

4.4.1   Short Messaging Service (SMS) allows the transfer of a limited amount of text information to/from a wireless mobile station. The routing of information is based on the destination's called party number and is based on the use of the SS7 infrastructure.

4.4.2   Currently, a translation type exists for mapping a MIN value to the appropriate route information for SMS applications. With the advent of number portability, the MIN value is no longer appropriate since the originator of the message is unlikely to be aware what the destination MIN value is. Two options have been identified:

- redefine the current translation type for mapping the MDN for SMS application,
- create a new translation type for mapping MDN for the SMS application.

4.4.3   No recommendation is offered herein, rather it is expected the appropriate experts in the ANSI accredited standards groups will define the appropriate course of action.

4.4.4   Since SMS requires that a message be delivered to the appropriate mobile subscriber, it is necessary to determine the current service provider associated with a specific directory number. One method of facilitating this is to upload the SMS routing addresses (Global Title Address -GTA) for each ported subscriber in the NPAC. The NPAC would then disseminate this for inclusion in the NP-DB. This information would have the same attributes and NPAC procedures as defined for Global Title Addresses associated with:

- Calling Name Delivery (CNAME)
- Line Information Data Base (LIDB)
- CLASS services
- Intersystem Voicemail/Message Waiting Indication (ISVM/MWI)

4.4.5   It should be noted that an alternative method was identified to deliver SMS without requiring this information to be included in the NP-DB. However, given that the wireline networks have settled on the architecture which relies on the NPAC broadcasting the GTA information, some benefit was seen in preserving the same architecture for the wireless SMS application.

SECTION 5 ARCHITECTURE AND ADMINISTRATION PLAN FOR LOCAL NUMBER PORTABILITY

5.1   The Architecture and Administration Plan For Local Number Portability (the Plan) was initially developed by the NANC LNP Architecture Task Force, under the NANC Selection Working Group. The Plan was forwarded to the FCC on May 1, 1997 as an attachment to the LNP Selection Working Group Report. The FCC in the LNP Second Report and Order accepted all of the recommendations contained in Issue 1, Revision 3, dated April 25, 1997 of the LNP Architecture and Administration Plan. One of the future activities listed in section 7 of the Plan was the integration of wireless into LNP, since the original report was drafted from a purely wireline perspective. The WWITF was subsequently formed to make, in part, recommendations on the necessary changes to the LNP Architecture and Administration Plan, which are summarized below.

- Reference to the LNP Second Report and Order, noting the creation of seven number portability database regions (plus Canada), Lockheed Martin and Perot System[13] as database administrators, the responsibility of the N-1 carrier to perform the appropriate LNP data queries, the need to integrate CMRS providers into LNP, the interim acceptance of the already established LLC's under NANC, continue the management and oversight of the LNP administrators, NANC would provide national oversight of LNP administration, and the creation of a committee chaired by the Chief of the Common Carrier Bureau to oversee the introduction of LNP in the top 100 markets. (Section 1)
- The High Level LNP Process view was updated to more accurately indicate the LSR process to show the separation of the SOA and LSMS platforms, and to include reference to a Mobile Switching Center (MSC) and wireless terminals. (Section 4)

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[13] Subsequent to the endorsement of the two LNPA administrators, the LLC contracts with Perot Systems Inc. were terminated in February 1998, and Lockheed Martin IMS became the administrator in all seven regions.

- A brief history of the activity leading up to the development of the LNP Architecture and Administration report and the formation of the WWITF, and its mandate. (Section 5)
- A note was added about the requirement for IS-41 based wireless carriers to make network upgrades to support the separation of the Mobile Identification Number (MIN) and Mobile Dialed Number (MDN) which is required to support LNP. These network changes must be made even in markets where numbers will not be ported. (Section 6)
- The service provider definition was changed to include CMRS providers. (Section 7.1)
- The LNPAWG recommended solution for number portability with high volume call-in number (choke network) was noted. (Section 7.13)
- The LNP porting assumptions between wireline and wireless carriers agreed upon in the WWITF were included. (Section 7.14)
- The NPAC regions were updated to include the states in each regions. (Section 9)
- The NPAC/SMS user criteria was modified to include access to address public safety concerns. (Section 12.2.4)
- Wireless call scenario's were identified and added to the report. (Attachment A)

5.2   See **Appendix C** for the complete "Architecture & Administrative Plan for Local Number Portability" report.

SECTION 6 LNPA TECHNICAL & OPERATIONAL REQUIREMENTS TASK FORCE REPORT

6.1   The Cellular Telecommunications Industry Association's (CTIA) Inter Service Provider Portability Workshop adopted a leadership role to develop an LNP plan for the wireless segment of the industry. During the last quarter of 1997 and the first quarter of 1998 the focus of the CTIA workshop was to develop the business needs required to provide LNP between wireless carriers as well as between wireless and wireline carriers. CTIA released its report titled *Subject Matter Expert Workshop Inter-Service Provider Communication Report* on February 4, 1998 and a read out of their results was presented to the LNPA Wireless and Wireline Integration Task Force (WWIFT) on February 9, 1998. The CTIA workshop recommended that WWITF request the LNPA Technical and Operational Requirements (T&O) Task Force to investigate the feasibility

of Number Portability Administration Center (NPAC) Service Management System (SMS) modifications to support wireless LNP business requirements. WWITF accepted the recommendations in Section 6.5 of the CTIA report, which contained the business requirements, and presented these recommendations to the LNPA T&O Task Force at their February 12, 1998 meeting.

6.2   The LNPA T&O Task Force developed a timeline of activities necessary to accomplish the requested changes to satisfy the FCC requirement for wireless carriers to provide LNP by June 30, 1999. The LNPA T&O Task Force timeline included activities intended to define the business needs, develop the associated requirements for the systems and applicable interfaces, and prepare a recommendation to the Limited Liability Companies (LLCs) to request the changes from the NPAC SMS vendor (i.e. Lockheed Martin, IMS).

6.3   The LNPA T&O Task Force developed the business requirements and change orders during special task force meetings during March 1998 and the detailed requirements were developed in April and May 1998. Three (3) change orders and associated requirements were developed to satisfy the WWITF request to support business needs for porting between wireless carriers. These change orders are described in Sections 6.4 through 6.6 below. One additional change was requested by WWITF and the LNPA T&O Task Force will handle this request as described in 6.7 through 6.9 below.

6.4   The WWITF requested NPAC SMS timers to support wireless to wireless porting. The existing timers are used by the wireline industry segment to support the flow of porting through the NPAC process. WWITF recommends a reduction in the overall porting timeframe currently used by wireline. In order to support this wireless need, a change order was developed that requests development of four (4) sets of timers that contain tunable values to define concurrence intervals for porting that are easily changed based on business needs. This allows for timers to support wireless to wireless ports, wireline to wireline ports, wireless to wireline ports and wireline to wireless ports. In addition, it provides a foundation to address future industry needs.

6.5   The WWITF requested that NPAC system and center business hours be defined to uniquely address the needs for wireless to wireless porting. A change order was developed to request the addition of Saturday as a business day and to increase the NPAC daily business hours. These business hours are tunable to address individual regional requirements. WWITF supports the holidays currently defined by the NPAC.

6.6   The WWITF requested that the NPAC SMS be modified to include a new set of Destination Point Codes (DPC) and Sub System Number (SSN) information in support of wireless Short Message Service. A change order was developed to include this information in the subscription version received from the Service Order Activation (SOA) systems, stored on the NPAC SMS, and sent to the Local Service Management System (LSMS) for wireless to wireless porting.

6.7   The WWITF recommends that the inter-service provider communication process designed by the wireline industry segment be replaced for wireless portability. The wireline process includes a communication vehicle titled the Local Service Request (LSR). The LSR initiates the communication between the old and new service providers and supports the information exchange required to port customers. The wireless industry segment plans to use this process as an interim measure, however since the process does not currently exist between wireless service providers, a replacement process is requested. The recommendation from WWITF is to replace the LSR process with a modification to the NPAC SMS to communicate customer name and address information. The LNPA T&O Task Force believes that the WWITF recommendation to replace the LSR process by enhancing the existing LNP systems and processes to use customer name and address as the inter-service provider communication channel is inconsistent with the First Report and Order and Further Notice of Proposed Rulemaking, CC Docket No. 95-116, July 2, 1996 (LNP Order). In Paragraph 99 of the LNP Order, the FCC states "We believe that at this time the information contained in the number portability regional databases should be limited to the information necessary to route telephone numbers to the appropriate service providers. To include, for example, information necessary to provide E911 services or proprietary customer specific information would complicate the functions of the number portability databases and impose requirements that may have varied impacts on different localities".

6.8   Discussion of the proposal to replace the LSR process occurred at the April 21, 1998 NANC meeting. The following three (3) options were discussed as possible solutions to the issue:

Option 1 - Modify the existing LSR process – The LSR process designed for use by the wireline industry is overly burdensome for the wireless industry as much of the information required on the various forms used in the process is not relevant to a wireless service provider. The Ordering and Billing Forum (OBF), the industry organization responsible for developing and maintaining the LSR process, is willing to consider modifications to meet the ordering requirements of the wireless service providers. However, the wireless carriers, who do not currently use the

LSR process, believe that it is too cumbersome and costly to implement and does not adequately support the porting intervals required for wireless ports. Therefore, a replacement process is recommended by the wireless industry.

Option 2 - Modify the existing LNP systems to act as the inter-service provider channel – This proposal was made by the CTIA to modify the NPAC SMS to communicate customer name and address information. This involves the new service provider sending customer name and address information regarding the port via the standard interface to the NPAC SMS. The NPAC SMS then transmits a notification message containing name and address and other information pertaining to the port to the other involved service provider via the standard interface. This acts as the notice to the old service provider that a customer requested a port. The old service provider then follows the current process to provide concurrence to the port. This proposal requires development by the wireless industry of a process to input the customer name and address and other porting information, as well as the process to use this information by the old service provider following receipt of the data. In addition, modifications to the standard interface between the various LNP systems is required to accommodate the name and address information. Finally, modifications are required to the existing NPAC SMS developed and maintained by Lockheed Martin, IMS and to all the various interface systems currently used by the service providers involved in porting today. Further study is required to determine the magnitude of the impacts to the existing LNP systems.

Option 3 - Develop a stand alone inter-service provider communication channel – This proposal recommends development of a stand alone system to perform all of the functions identified in the CTIA proposal described above. This removes the NPAC SMS from the process, satisfying the LNPA T&O Task Force concern regarding use of the NPAC SMS for transmission of customer name and address information. The recommendation requires development of a new system to perform the inter-service provider communication process. It also requires new interfaces with the involved service providers, and new processes at the wireless service providers to use the system.

6.9   Following lengthy discussion at the NANC meeting, a recommendation was made to investigate development of a capability that uses some concepts from Option 2 and some from Option 3. Further study is required to develop processes and system requirements to provide both the data source and input procedures for the interface and for the use of the port notification message delivered to the service provider. The LNPA T&O Task Force will then request a feasibility study from Lockheed Martin, IMS

and will request input from the various interface vendors to develop these system capabilities.

6.10   The LNPA T&O Task Force plans to complete the NPAC SMS requirements in May 1998, followed immediately by a recommendation to the LLCs for a Statement of Work from Lockheed Martin, IMS. The change orders described in 6.4 through 6.6 above are considered essential by WWITF to the successful introduction of wireless portability. Therefore, the recommendation to the LLCs will include the need to obtain these modifications to accommodate the June 30, 1999 implementation of wireless portability. The change described in 6.7 through 6.9 above to replace the LSR communication process for wireless portability is considered by WWITF as a second phase requirement, and its implementation is dependent on the results of the feasibility study requested by the LNPA T&O Task Force and the work directed by the WWITF to make use of the system enhancements.

SECTION 7   LNPAWG ISSUES AND SUMMARY OF RECOMMENDATIONS

7.1   Recommendations

7.1.1   The wireless industry will complete a feasibility study to replace or modify the LSR process for wireless to wireless porting. Refer to Sections 3.3.3.2, 3.3.2.2, and 6.7 to 6.9 of the report.

7.1.2   Recommend reduced porting intervals for wireless to wireless porting to be 30 business minutes for FOC and 2 business hours for the porting process through the NPAC/SMS. Many wireless carriers believe that changes are required to the NPAC/SMS to support these reduced maximum time intervals. It should be noted that some wireless and wireline service providers did not agree with the need for NPAC changes as the existing NPAC capabilities would accommodate these porting intervals. Refer to Sections 3.3.2.3, 3.3.3.2, and 6.4 of the report.

7.2   Open Issues

7.2.1   This report does not consider LNP impacts on resellers. Analysis of the impacts will be studied during the last half of 1998. Monthly discussions will take place at the LNPA Working Group meetings. Monthly status reports will be made to NANC with the

final recommendation presented to NANC no later than December 31, 1998. Refer to Section 3.3.3.3.

7.2.2 Nation Wide Roaming cannot be supported unless MIN/MDN separation is implemented by all MIN based wireless systems (not just those in the top 100 MSAs) prior to the start of wireless number portability. Refer to Section 4.1 of the report for complete details.

The resolution of nation wide roaming is required for the following services:
- automatic callback, calling number, and calling name delivery;
- the incorrect callback number is delivered on E911 calls;
- the incorrect calling party number is used for toll billing by the interexchange carriers;
- the incorrect calling party number is used for billing records;
- the incorrect calling party number is used to bill for various operator services (e.g. DACC).

7.2.3 Consensus was not reached on porting between wireline and wireless carriers. Please refer to Section 3.1 Rate Center Issue and Appendix D. If the FCC chooses to address any potential public policy issues associated with the rate center issues, the industry may need to revisit some of the wireless wireline integration requirements.

7.2.4 Short Message Service is impacted by LNP because the current service provider associated with a specific directory number must be determined to properly deliver the message to a mobile subscriber. Alternative solutions to delivery of Short Message Service in an LNP environment are being evaluated at various ANSI accredited standards groups. Depending on the Short Message Service solution(s) approved, additional translation types or other modifications to the NPAC/SMS may be required. Refer to Section 4.4 of the report for complete details.

SECTION 8   DEFINITIONS

AMPS	Advanced Mobile Phone System
ANSI	American National Standards Institute
CDMA	Code Division Multiple Access
CLASS	Custom Local Area Signaling Services
CMRS	Commercial Mobile Radio Service

CNAME	Calling Name Delivery
CTIA	Cellular Telecommunications Industry Association
DACC	Directory Assistance Call Completion
FCC	Federal Communications Commission
FOC	Firm Order Confirmation
FRS	Functional Requirements Specifications
GSM	Global Standard for Mobile communication
GTA	Global Title Address
IIS	Interoperability Specifications
IMSI	International Mobile Station Identifier (E.212)
ISVM/MWI	Intersystem Voicemail/Message Waiting Indication
IS-41	Interim Standard 41
LNPA-T&O	Local Number Portability Administration- Technical and Operations group
LNPA-WG	Local Number Portability Administration-Working Group
LEC	Local Exchange Carrier
LIDB	Line Information Data Base
LNP	Local Number Portability
LSR	Local Service Request
MDN	Mobile Directory Number
MIN	Mobile Identification Number
MSA	Metropolitan Statistical Area
MSC	Mobile Switching Center
MSISDN	Mobile Station Integrated Service Digital Network Number (E.164)
NANC	North American Numbering Council
NP	Number Portability
NPAC	Number Portability Administration Center
NPAC-SMS	Number Portability Administration Center-Service Management System
NPDB	Number Portability Database (contains associations between ported numbers and LRNs)
NXX	Office Code
PCS	Personal Communications Service
PSAP	Public Safety Answering Point
OBF	Ordering and Billing Forum
Rate Center	A uniquely defined geographical location within an exchange area for which mileage measurements are determined for the application of interstate tariffs.
SME	Subject Matter Expert
SMR	Specialized Mobile Radio
SMS	1) Service Management System (usually LSMS) 2.) Short Message Service
SOA	Service Order Administration

SS7	Signaling System Seven
TDMA	Time Division Multiple Access
WNP	Wireless Number Portability
WSP	Wireless Service Provider
WWITF	(LNP) Wireline/Wireless Integration Task Force

APPENDICES

Appendix A - Working Group and Task Force Organization

The LNPAWG, the T&O Task Force, and WWITF, are opened to all parties and are representative of all segments of the telecommunications industry.

LNPAWG Member List

Airtouch Communications
Ameritech
Ameritech Cellular
APCC, Inc.
AT&T
AT&T Wireless Svcs.
ATX Telecom
Bell Atlantic
Bellcore
BellSouth
California PUC
CBT
Cox
CTIA
Florida Public Service Com
Frontier
Green River Systems
GTE
GTE Network Systems
Illuminet
Interstate Fibernet
Lockheed Martin
Lucent Technologies
Maryland PSC
MCI
Nextel
NYNEX
Omnipoint Comm Svcs
Ohio PUC
PACE/COMPTEL
Pacific Bell
PCIA
Perot Systems
SBC
SBC/TRI
Selectronics

Sprint
Sprint PCS
Stentor
Tekelec
Telefonica de Puerto Rico
Teleport
Time Warner/NCTA
US West
USTA
WorldCom

T & O Task Force Member List

360 Communications
Ameritech
AT&T
ATX Telecom
Bell Atlantic
Bellcore
BellSouth
BellSouth Wireless
California PUC
Cox
DCS
EDS
Evolving Systems, Inc.
GTE - Information Tech.
GTE Network Systems
IBM
Illuminet
Interstate Fiber Net
Lockheed Martin
Lucent Technologies
MCI
MDF Assoc. for Lockheed
Nortel
NYNEX
OPASTCO
Pacific Bell
Pac Bell Mobile Svc
PCIA
Perot Systems
Pocket Com/CTA
SBC
Sprint

Sprint PCS
Tekelec
Tel Tek Solutions, Inc.
Telecom Software Ent.
Telecom Technologies
Telecommunications Resellers Association
Teleport
Time Warner
US West
WinStar
Worldcom

WWITF Task Force Member List

360° Communications
AGCS
AirTouch
Amdahl
Ameritech Cellular
AT&T
AT&T Wireless
Bell Atlantic Mobile
Bellcore
BellSouth
Canadian Radio, Television, & Telecommunications Commission
Cellular One
Comcast Cellular
CTIA
DSET
Ericsson
Evolving Systems, Inc.
GTE Information Technology
GTE Network Services
GTE Labs
Illuminet
L. A. Cellular
Lockheed Martin
Lucent Technologies
MCI
MCI Metro
Microcell Connexions Inc.
Microcell Telecom
Nortel
Ohio PUC
Omnipoint Corporation

Pacific Bell
Pac Bell Mobile Svc
Perot Systems
Prime Co. Personal Communications
SBC
Southwestern Bell
Sprint
Sprint PCS
Tekelec
Telecom Software Enterprises
Teleport Comm Group
Time Warner Communications
USTA
US West
World Com

Appendix B - Working Group and Task Force Meetings

LNPAWG, T&O Task Force, and WWITF meetings were scheduled concurrently, generally on a monthly basis in various cities throughout the United States.

Week Of	City & State
June 30, 1997	Chicago, IL
July 28, 1997	Atlanta, GA
August 18, 1997	Washington DC
September	no meeting
October 10, 1997	Washington DC
November 10, 1997	Washington DC
December 8, 1997	Tampa, FL
January 7, 1998	Kansas City, MO
February 9, 1998	Dallas, TX
March 16, 1998	Washington DC
April 13, 1998	Washington DC

Appendix C - Architecture & Administrative Plan for Local Number Portability (see separate attachment)

Appendix D - Rate Center Issue

1.1   Cover Letter to the NANC

January, 7, 1998

Dear Alan Hasselwander,

The attached documentation package communicates to the North American Numbering Council (NANC) an issue that has been diligently worked in the Wireless Wireline Integration Task Force (WWITF) for several months without resolution. This issue has been termed by the WWITF as "rate center disparity." The task force concludes that there is a difference, within the context of Service Provider Portability, between porting a subscriber, from a wireline service provider to a wireless service provider, and, from a wireless service provider to a wireline service provider. However, there is a lack of consensus as to whether this difference warrants a policy change from the NANC.

There are three key questions detailed within the documentation for which Local Number Portability Architecture Working Group (LNPA/WG) is seeking direction from the NANC. These questions need to be resolved before the LNPA/WG Report to the NANC on wireless and wireline integration can be completed. The questions are:

- Does the difference in the scope of porting capabilities between wireless and wireline service providers create a competitive disadvantage which would be inconsistent with the FCC's objectives for numbering?
- If so, is this competitive disadvantage overridden by the FCC's order to implement wireless - wireline portability to encourage CMRS - wireline competition?
- Would the inability in certain situations for a wireless end user, staying at the same location, to keep their telephone number when changing to a wireline service provider be acceptable from a statutory or regulatory perspective?

The LNPA/WG report on wireless and wireline integration is due to the NANC on May 18, 1998. In order for the LNPA/WG to meet this requirement it is necessary for the NANC to resolve this dispute. The subsequent direction should be forthcoming by March 16, 1998 so that recommendations can be included in the Integration Report due May 18, 1998.

Respectfully,

Woody Kerkeslager   Terry Appenzeller

1.2   Background Information

Report from Wireless Wireline Integration Task Force
to the North American Numbering Council (1/20/98)
Rate Center Issue

Issue Statement: It is recognized that there is a difference within the context of Service Provider Portability with respect to porting a subscriber from a:

- Wireline Service Provider to a wireless service provider and
- Wireless Service Provider to a wireline service provider

Within the WWITF, there is a lack of consensus whether the difference constitutes a lack of competitive parity.

Background Material

Wireless - Wireline Service Provider Portability

1.1 Wireline Rating Architecture

The fundamental building block of the wireline rating architecture is the rate center. A rate center is a geographical area which utilizes a common geographical point of reference, called a rating point and defined by vertical and horizontal (V/H) coordinates, for distance measurements associated with call rating. In Figure 1, a call from a customer in Rate Center D to another customer in Rate Center 1 would be rated on the basis of the distance between their respective V/H coordinates.

A rate center may encompass a single wire center area, a portion of a wire center or multiple wire center areas. Rate Center 1 (Figure 1) might consist of multiple Incumbent Local Exchange Carrier (ILEC) wire center areas while Rate Center 3 might include only a single wire center area. Rate center boundaries are approved by state commissions.

1.2 Wireline Local Calling Areas

Calls between customers located in different rate centers may be billed at local flat rate, local measured rate or toll. The local calling area may be defined in several different ways. Each local exchange carrier defines its own originating calling area which are included in their tariffs filed with state commissions. In some states the distance between the originating and terminating rate center V/H coordinates provide the basis for the differentiation between local and toll calling (e.g. less than 12 miles is local and 12 miles or greater is toll). In other states local calling areas are not distance sensitive, but are defined on the basis of geography as shown in Figure 1. These local calling areas frequently encompass multiple ILEC rate centers.

1.3 Wireline NXX Assignment

For ILECs, NXXs are generally assigned to individual central office switches for use in their respective geographic wire center serving area within a rate center. Competitive Local Exchange Carriers (CLECs) are expected to have fewer switches than the imbedded ILEC architecture. CLEC wire center serving areas may encompass not only multiple ILEC wire centers, but also multiple rate centers. For example, a CLEC might have a single switch serving one or more MSAs. In order to maintain rate center integrity and avoid consumer confusion, in most areas CLECs will need a minimum of one NXX for each rate center within their planned service area. These NXXs will be used for CLEC customers that are not porting a ILEC telephone number. For example, in Figure 1, a CLEC wishing to serve customers located in the central zone and tier 1 would need 8 NXXs, one for rate centers 1 through 8.

1.4 Wireline TN Assignment

A customer is assigned a telephone number based on their physical location. ILEC customers will be assigned a telephone number from the NXX(s) assigned to the switch that serves the wire center and rate center area in which the customer is physically located. CLEC customers will be assigned a telephone number from the NXX(s) assigned to the CLEC for the rate center area in which the customer is physically located. These assignment procedures ensure the retention of the rating structure integrity.

2.1 Wireless Rating Architecture

Wireless carriers have flexibility in defining their own rating architectures. Factors in determining how to rate a call may include time, distance, whether the call is mobile to mobile versus mobile to land, time-of-day, and aggregate minutes of use per month. Wireless carriers are not regulated at the state or federal level concerning prices or rating, nor are they limited to incorporating originating and terminating rate centers in their rate structures. Their rating structure is solely a business decision.

2.2 Wireless Local Calling Areas

Since they have flexibility in determining their rating structures, wireless carriers define local calling areas to meet the competitive needs of the markets. Wireless carriers have no domestic requirements to file state or federal tariffs. However, all wireless carriers have the concept of calling areas in which no additional toll charges are applied for calls. In some cases, this may be based on:

- BTA (Basic Trading Area),
- MTA (Major Trading Area),
- RSA (Rural Serving Area)
- MSA (Metropolitan Statistical Area),
- State
- Combination of States
- LATA (Local Access Transport Areas)
- NPAs

In addition, these can be combined in a variety of ways with the above rating schemes.

2.3 Wireless NXX Assignments

NXX codes that are assigned to wireless carriers are associated to a specific wireline rate center and are communicated via the LERG. These are assigned to wireline rate centers in order to accomplish land to mobile rating. However, once NPA-NXXs are assigned to a wireless carrier, wireless carriers may select any one of their NPA-NXXs when allocating numbers to a subscriber. The WSP may select a particular NPA-NXX value based on customer desires of

calling areas for land to mobile calls, mobile to land calls, or a combination of both. Alternatively, a wireless carrier may choose to select an NPA-NXX value that is physically closest to the subscriber billing address. There are no state or federal requirements to associate an NPA-NXX for a new subscriber based on their residence, billing, or other location. For example in Figure 2 RCs (Rate Center) 2 - 7 have local calling to RC 1, and RCs B - E, 7, 8 have local calling to RC A. Note that RCs A - E are located in NPA 2. Assuming there was customer demand for these calling scopes the WSP might assign an NXX from NPA1 (214-543) to RC 1 as a wireless exchange W-5 and an NXX from NPA2 (972-234) to RC A as a wireless exchange W-11.

2.4 Wireless Telephone Number Assignment

The customers physical, residential, business, or billing location is not a necessary requirement in determining which numbers are assigned. Rather, factors such as originating or terminating calling scopes in relationship to wireline networks may be a determining factor. The NPA-NXX portion of a telephone number of a wireless subscriber may be selected based on the criteria described above in Section 2.3. There is no requirement that a subscriber limit their service usage to certain rate centers, nor is their physical location necessarily a determining factor in which number they are assigned. In Figure 2, if a customer whose billing address was located in RC X1 wanted to have local calls to their wireless phone from callers located in RCs 1- 8, they would be assigned a telephone number from an NXX in wireless exchange W-5 (214-543) assigned to RC 1.

3.0 Limitations on the Scope of Service Provider Portability

Due to the need to ensure proper rating and routing of calls, the NANC LNPA Architecture Task Force agreed that service provider portability was limited to moves within an ILEC rate center. Section 7.3 of the NANC LNP Architecture & Administrative Plan report which has been adopted by the FCC, states, "portability is technically limited to rate center/rate district boundaries of the incumbent LEC due to rating/routing concerns". As shown in Figure 3, a wireline customer could move from the northeast corner of RC 1 to the southwest corner of the same rate center and port their number, either when changing service providers or for a move within their own network. However a wireline customer could not move between RC 1 and RC 2 and retain their telephone number.

4.0 Location Portability

Location portability will extend the scope of number portability beyond rate center or local calling area boundaries, but there are numerous significant issues that must be addressed in setting the scope of location portability. These issues include, but are not limited to: the loss of the 1+ toll identifier that some state regulators have maintained is a significant consumer issue, the ability to determine the jurisdictional nature of calls to numbers that have been ported across a state boundary, the ability to recognize an interLATA call for routing to the customer's preferred interexchange carrier, the impact of porting beyond a geographical NPA boundary, consumer confusion issues, and development of the means to rate and bill calls for all of the above potential scenarios. The question of location portability was delegated to the states by the FCC in their First Report and Order and Further Notice of Proposed Rulemaking in CC Docket 95-116, released 7/2/96.

5.0 Example Porting Scenarios

The following scenarios reflect rate center limitations included in Section 3.0. See Figures 4A - 4D.

Scenario A - Wireline subscriber with telephone number 214-789-2222, located in RC 7, wishes to change to wireless service while remaining at the same location.

Porting would be permissible as long as the wireless service provider has established an interconnect agreement for calls to this wireless telephone number in RC 4.

Scenario B - Wireline subscriber, 214-456-1111 located in RC 4 is moving to RC 6 and wishes to change to wireless service.

Porting would be permissible as long as the wireless service provider has established an interconnect agreement for calls to this wireless telephone number in RC 4. Because the subscriber will have terminal mobility and the actual location of the phone will vary, the move of the billing location to another rate center does not impact rating.

Scenario C - Wireless subscriber, 972-234-5555, whose billing location is in RC A, wishes to change to wireline service provider while remaining at the same location.

Porting would be permissible because the wireless NPA-NXX, 972-234, is assigned to RC A and the subscriber is located in RC A.

Scenario D - Wireless subscriber, 972-234-3333, whose billing location is in RC F, wishes to change to wireline service.

Porting would not be permissible because the subscriber is located in RC F and the subscriber's telephone number is assigned to RC A. If this were allowed calls from other customers located in RC F to this subscriber would be toll since calls from RC F to RC A are toll and the ported telephone number would be associated with RC A.

6.0 Parity Issues

The above examples provide only a small sample of potential porting scenarios. If all of the potential scenarios were examined, the following patterns would emerge:

Porting from a wireline service provider to a wireless service provider is permitted as long as the subscriber's initial rate center is within the WSP's service area and the WSP has established interconnection/business arrangements for calls to wireless numbers within that rate center. This could apply even when the subscriber is moving to another LATA because of the terminal mobility characteristic of almost all wireless applications. With terminal mobility the subscriber can be physically located anywhere.

Porting from a wireless service provider to a wireline service provider is *only* allowed when the subscriber's physical location is within the wireline rate center associated with the wireless NPA-NXX.

This creates a difference from an end user perspective when porting from a wireline to wireless service provider versus porting from a wireless to a wireline service provider. This difference is due to the inherent differences in service areas and terminal mobility between wireline and wireless service providers.

7.0 Federal Statutory and Regulatory Policies

Definition of Service Provider Portability - Section 3, Telecommunications Act of 1996. "The term 'number portability' means the ability of users of telecommunications services to retain, at

the same location, existing telecommunications numbers without impairment of quality, reliability, or convenience when switching from one telecommunications carrier to another."

Federal Policy Objectives for Numbering - Report and Order, CC Docket No. 92-237 Released 7/13/95.

- Administration of the plan (NANP) must seek to facilitate entry into the communications marketplace by making numbering resources available on an efficient, timely basis to communications service providers.
- Administration of the NANP should not unduly favor or disadvantage any particular industry segment or group of consumers.
- Administration of the NANP should not unduly favor one technology over another. The NANP should be largely technology neutral

Location Portability - First Report and Order and Further Notice of Proposed Rulemaking in CC Docket 95-116, released 7/2/96. The FCC delegated the question of location portability to the states. The FCC stated in paragraph 186, "To avoid the consumer confusion and other disadvantages inherent in requiring location portability, however, we believe state regulatory bodies should determine, consistent with the Order, whether to require carriers to provide location portability. We believe the states should address this issue because we recognize that "rate centers" and local calling areas have been created by individual state commissions, and may vary from state to state."

Portability between CMRS and Wireline Service Providers - First Report and Order and Further Notice of Proposed Rulemaking in CC Docket 95-116, released 7/2/96.[14]

- Paragraph 155: "This mandate is in the public interest because it will promote competition among cellular, broadband PCS, and covered SMR carriers, as well as among CMRS and wireline providers. We therefore include those carriers in our mandate to provide long term service provider portability ..."
- Paragraph 160: "We further conclude that number portability will promote competition between CMRS and wireline service providers as *CMRS providers offer comparable local exchange and fixed commercial mobile radio services....* Finally in the Fixed CMRS Notice, the Commission tentatively concluded that PCS and cellular providers will provide *fixed CMRS local loop services, and that such carriers will directly compete with traditional wireline local exchange carriers.* We believe, for the reasons stated above, that service provider portability will encourage CMRS-wireline competition, creating incentives for carriers to reduce prices for telecommunications services and to invest in innovative technologies, and enhancing flexibility for users of telecommunications services."
- Paragraph 161: "...Several parties have indicated that at least some CMRS providers intend to compete with wireline carriers in the local exchange market. To do so effectively, *CMRS carriers are likely to change their pricing structures to resemble more closely wireline pricing structures.*"

8.0 Key Escalation Issues

There are three key questions which need to be resolved before a method for wireline wireless portability can be selected:

- Does the difference in the scope of porting capabilities between wireless and wireline service providers create a competitive disadvantage which would be inconsistent with the FCC's objectives for numbering?

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[14] Italics in following excerpts added for emphasis.

- If so, does this competitive disadvantage override by the FCC's order to implement wireless - wireline portability to encourage CMRS - wireline competition?
- Would the inability in certain situations for a wireless end user, staying at the same location, to keep their telephone number when changing to a wireline service provider acceptable from a statutory or regulatory perspective?

APPENDIX A

Potential Alternative Methods to Achieve Parity Considered

I.   Require assignment of NXXs to wireless service providers on a per rate center basis, and require assignment of telephone numbers to wireless customers based on their billing location.
A.   This would have a significant negative impact on NPA exhaust.
B.   There is no technical need from a routing or rating perspective within the wireless service provider's network for this restriction since with terminal mobility the physical billing location of a wireless set is not relevant.
II.   Require alignment of local service areas between wireless and wireline service providers.
   A.   This is problematic from a jurisdictional basis since wireless service providers are regulated federally and since local calling areas for wireline service providers are largely regulated on a state basis.
   B.   Wireline local service areas are restricted from extending beyond LATA boundaries.
III.   Require wireless and wireline service providers to adopt the same rating methods.
   A.   Same jurisdictional problems as described in B.
   B.   Many state regulators (and consumers) would not be in favor of mandatory measured rate service for wireline service.
   C.   Wireless rating methods are business decisions and are not subject to regulation.
IV.   Defer wireless portability until state commission order implementation of location portability beyond the rate center, NPA boundary, state and LATA.
   A.   Location portability would be very complex and costly to implement.
   B.   Location portability has been delegated to state commissions.
V.   Limit wireless - wireline portability to fixed location/non-roaming wireless services where the wireless service provider has agreed to adopt numbering assignment and portability rules consistent with wireline service providers.
   A.   Does not provide full wireless - wireline portability.
VI.   Limit service provider portability to intra-wireline service provider and intra-wireless service provider changes.
   A.   Not compliant with the FCC requirements in their First Report and Order.

1.3   Wireline Position Paper

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Wireless Wireline Integration Task Force
Rate Center Issue Position Paper
North American Numbering Council
January 20, 1998

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EXECUTIVE SUMMARY

The paper addresses the three key questions being referred to the NANC by the WWITF:

1. Does the difference in scope of porting capabilities between wireless and wireline service providers create a competitive disadvantage which would be inconsistent with the FCC's objectives for numbering?
2. If so, is this competitive disadvantage overridden by the FCC's order to implement wireless - wireline portability to encourage CMRS - wireline competition?
3. Would the inability in certain situations for a wireless end user, staying at the same location, to keep their telephone number when changing to a wireline service provider be acceptable from a statutory or regulatory perspective?